

REMARKS

By the present amendment, the Applicant has amended Claims 1 and 6, and added Claims 9 and 10. Claims 2-5, 7 and 8 have been cancelled by a prior amendment. Claims 1, 6, 9 and 10 remain pending in the Application. Claims 1 and 9 are independent claims.

In the outstanding Office Action of August 25, 2006, the Examiner rejected Claims 1 and 6 under 35 U.S.C. §103(a) as being unpatentable over JP 2000-16392 in view of Bochan (US 3,118,468).

Applicant will advance arguments hereinbelow to illustrate the manner in which the presently claimed invention is patentably distinguishable from the applied and cited prior art. Reconsideration of the present application is respectfully requested.

Japanese patent No. JP 2000-16392 discloses a watercraft with an engine, producing exhaust gas. The exhaust gas travels through a conduit, which is provided with an attachment 2 or 17, having a deformable slit 4 or 18. The purpose of the invention, or attachment 2, of the Japanese patent is “to suppress the reflecting noise of the exhaust gas (JP 2000-16392, translation of abstract).” Watercrafts of this type are propelled by water jet propulsion systems.

The “exhaust” of this Japanese patent is combustion exhaust and is not a propulsion exhaust. As with all combustion engines, carbon dioxide, carbon monoxide and other

gaseous components result from the combustion process. These gases are then released as “exhaust”. The attachment, 4 or 17, of JP 2000-16392 is installed on a combustion exhaust gas conduit, and releases these combustion byproducts. The combustion gas is clearly not an effective means for propulsion, nor does JP 2000-16392 suggest that it can possibly be used as such. Thus, JP 2000-16392 does not show 1) a propulsion fluid flowing through a conduit, or 2) a propulsion fluid altering attachment disposed on the conduit, the attachment having a generally elongated, open S-shaped slit having inwardly and outwardly opposing portions.

The patent to Bochan discloses a resilient check valve, formed of a rubber-like material. The valve has an annular base 6, which is intended to be secured at the inner surface of a conduit 2. The valve includes a hollow portion 10 having an inlet end 11 joined to the base 6 and an outlet end 12. A closed, S-shaped slit 14 is formed in the S-shaped outlet end 12. The slit may be forced open by fluid pressure, from a normal closed position to an open position, at which point hollow portion 10 approximates the shape of a cylinder. If any back pressure is experienced in the conduit 2, valve 7 will cause the sides of slit 14 to be firmly pressed against each other to close the slit. It should be noted, that when the slit 14 of Bochan is “S-shaped”, with inwardly and outwardly opposing portions, the slit is closed, unlike the open “S-shaped” slit of Applicant’s attachment. Thus, Bochan also does not show 1) a propulsion exhaust flowing through a conduit, and 2) a propulsion exhaust altering attachment disposed on the conduit, where the attachment has a generally elongated, open S-shaped slit having inwardly and outwardly opposing portions.

The Examiner believes that it would have been obvious to modify the attachment of JP 2000-16392 to have an S-shaped slit, as taught by the S-shaped slit in the check valve of Bochan, and that the use of the S-shape will inherently result in an exhaust having a three dimensional helical pattern. However, there is clearly no suggestion or incentive in either the JP 2000-16392 reference or the Bochan reference to modify the attachment in the Japanese patent as urged by the Examiner, absent the teachings of Applicant's own disclosure. The teachings of Bochan, an internal conduit check valve having a closed S-shape, do not suggest to one of ordinary skill in the art to modify the slit in the combustion exhaust gas attachment of JP 2000-16392 to be an open S-shape, as Applicant's claims recite, and as the Examiner proposes. Additionally, Bochan teaches a valve that opens to a cylindrical shape, which would certainly not produce a resultant exhaust configuration of a three dimensional helical or spiral pattern.

In the system of the subject Patent Application, a vehicle is provided with a vehicle engine which drives fluid from the environment through a conduit, to be expelled, under pressure, from the rear of the vehicle, thus producing a propulsive force. In the example of Fig. 5 of the subject Patent Application drawings, an undersea craft expels water, taken from the environment, through the conduit to achieve forward thrust. Similarly, a jet aircraft with a jet propulsion engine would expel air from the atmosphere through the conduit. In order to achieve optimal propulsion, the stream of pressurized propulsion fluid is directed parallel to the intended motion of the vehicle (and parallel to the primary axis of the vehicle), in a direction opposite that motion. Further, as shown in Fig. 1A of the Patent Application drawings, the expelled stream of propulsive fluid has a three-dimensional spiral or helical

shape, which allows for improved performance and handling of the vehicle, and for further reducing fluid drag and unwanted fluid dynamic effects, such as vortices and turbulence.

As noted above, the JP 2000-16392 reference teaches a system which expels exhaust gases from a conduit, rather than propulsive fluid. In fact, as shown in Fig. 8 of the JP 2000-16392 reference, the system is used in combination with a boat. The directional arrows A in Fig. 8 represent exhaust gas being expelled from the back of the boat, rather than propulsive water. Although the Examiner appears to contend that the exhaust gas has a horizontal momentum component and, thus, would produce some negligible propulsive force, the actual propulsion system is clearly shown in Fig. 1, consisting of an impeller P for driving water through a lower conduit, for expulsion through nozzle Na. The JP 2000-16392 reference clearly distinguishes between exhaust gas output and the output of propulsive water.

Further, with propulsive water flowing out of nozzle Na, the downwardly directed and angled exhaust (shown by arrows A in Fig. 8) will impinge upon the propulsive water, thus creating a downward force on the propulsive water stream, deviating it from a horizontal path. In contradistinction, the system of the subject Patent Application provides an arrangement for producing a propulsive fluid stream which is parallel to the direction of motion of the vehicle, not angled with respect to it, as produced by the JP 2000-16392 system. In the Japanese reference, both the exhaust gas and the propulsive fluid upon which the exhaust gas must impinge will have downwardly directed flows.

The Examiner has combined the JP 2000-16392 reference with the S-shaped slit of the Bochan reference, to produce a substantially three-dimensional helical fluid stream. However, as noted above, the exhaust stream produced by the JP 2000-16392 reference (which is clearly shown as having an downward, angled path A) is driven directly into the propulsive water stream, and the mixing of the two fluids would necessarily remove the helical or spiral shape of the pressurized fluid stream. Thus, not only do neither the JP 2000-16392 reference nor the Bochan reference teach a propulsive fluid stream which is directed parallel to the motion of the vehicle, but the references, when taken in combination, teach away from the production of a three-dimensional spiral-shape fluid stream.

Thus, neither the JP 2000-16392 reference nor the Bochan reference, when taken alone or in combination, provide for: "...the stream of propulsion fluid being composed of a fluid through which the vehicle is moving ... said propulsion altering attachment being positioned on said conduit such that the stream of propulsion fluid flowing through the substantially S-shaped slit travels substantially along the longitudinal axis ... in a substantially three dimensional spiral pattern ...", as is clearly provided by newly-amended Independent Claim 1, and newly-inserted independent Claim 9.

Thus, it is not believed that the subject Patent Application has been made obvious by either the JP 2000-16392 reference or the Bochan reference, when taken alone or in combination, when independent Claims 1 and 9 are carefully reviewed.

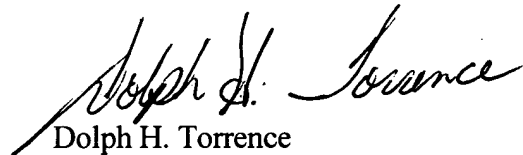
Application No.:10/677,800
Art Unit:3746

Attorney Docket No.:21530.00
Confirmation No.:9657

It is now believed that Claims 2 and 10 show patentable distinction over the prior art cited by the Examiner for at least the same reasons discussed above with regard to Claims 1 and 9.

For the foregoing reasons, Applicant respectfully submits that the present application has been placed in condition for allowance. If such is not the case, the Examiner is requested to kindly contact the undersigned in an effort to satisfactorily conclude the prosecution of this application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Dolph H. Torrence". The signature is written in a cursive, flowing style with a long horizontal stroke at the end.

Dolph H. Torrence
Registration No. 34,501
(703) 486-1000

DHT/mdr